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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/498,220 02/04/00 SCHONER

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John C. Thompson
69 Grayton Road
Tonawanda NY 14150

IM22/0522

EXAMINER

KERNS, K

ART UNIT

PAPER NUMBER

1725

DATE MAILED:

05/22/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/498,220

Applicant(s)

SCHONER ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 5, 8, 11, 13-15, and 17 is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2000 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: two arrows labelled as "4" in Fig. 3. Correction is required.
2. The drawings are objected to because Ref. 76.4 (nozzles) are not used to label the nozzle near the uppermost arrow (denoting airflow) in Fig. 9. It is also unclear in Fig. 9 from where the airflow is coming from in the direction of the bottommost arrow, as there is no introduction of air into this (isolated) region. Correction is required.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The disclosure is objected to because of the following informalities: on page 2, line 9, "hinderance" should be changed to "hindrance". On page 4, line 27, "p;inch" should be changed to "pinch". On page 7, line 5, "FIG. 1" should be changed to "FIG. 7". On page 9, line 21, "slow up" should be changed to "reduce". On page 11, line 29,

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a "." should be added after "76.4". Corrections and/or clarifications are required for these and other errors that occur throughout the specification.

Claim Objections

5. Claims 5, 8, 11, 13-15, and 17 are objected to because of the following informalities: in claims 5 and 13, line 4, the terms "a" should be deleted after "having" in each instance. In claim 8, last line, "deliver" should be changed to "delivery". In claim 11, last line, "a" should be added before "vacuum". In claim 14, line 7, "a pone" should be changed to "one". In claim 14, line 9, "of" should be added after "feeding". In claim 15, line 4, "may remotely control" should be changed to "remotely controls". In claim 15, line 5, "slowing up" should be changed to "reducing". In claim 17, line 5, "being" should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the pinch tube" in line 16 of the claim. There is insufficient antecedent basis for this limitation in the claim. It is unclear whether "the pinch valve" or "the delivery tube" should be used as a replacement.

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Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1, 3, and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hubert et al. (US 5,158,129) in view of Mulder et al. (US 5,474,609).

Hubert et al. disclose a method and device for feeding a granular material into a continuous casting mold, in which the device includes a source of granular mold powder, an upper hopper (tundish), a secondary (intermediate) hopper, a valve and transfer means (tube) between the hoppers, a flow sensor, and granular material delivery means (delivery tube assembly) interconnected via a (flexible) pipe between the secondary hopper and the top of the cast slab within the continuous casting mold (abstract; column 3, lines 8-54; column 4, lines 57-65; and Figure). Hubert et al. do not disclose the use of a variable diameter pinch valve for controlling the flow rate of the granular mold flux.

However, Mulder et al. teach a method and apparatus for applying powder coating material in which the apparatus includes a powder supply system (hopper) with a pneumatically actuated (flexible with variable diameter) pinch valve and a venturi-type powder pump, the pinch valve of which receives an output signal (on/off) from a sensor to correspond to a desired quantity of powder level in the hopper (column 13, lines 22-35; column 14, lines 14-40; column 17, lines 1-19; and Figure 2). The apparatus also contains control sensors and pneumatic controls, the sensors of which allow the operator to control the level of the powder in the container (abstract; column 2, lines 59-67; column 6, lines 43-67; and Figure 2). These features are advantageous for maintaining a predetermined level of powder in the container, as indicated by the output signal (column 14, lines 14-40; and column 17, lines 1-19).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the device for feeding a granular material

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into a continuous casting mold, as disclosed by Hubert et al., with the pneumatic pinch valve means of Mulder et al., in order to maintain a predetermined level of powder in the container (Mulder et al.; column 14, lines 14-40; and column 17, lines 1-19).

12. Claims 2, 4, 5, and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hubert et al. (US 5,158,129) in view of Mulder et al. (US 5,474,609) as applied to claim 1 above, and further in view of Kataoka et al. (US 4,116,367).

Hubert et al. (in view of Mulder et al.) disclose all the features of claim 1 above. Neither Hubert et al. nor Mulder et al. teaches an inline air pump with associated control devices, as well as two or more branched delivery tube assemblies.

However, Kataoka et al. disclose an apparatus for supplying powder to a continuous casting mold in which a gas injection device is mounted on the side wall of the powder hopper for smooth powder flow and maintaining positive pressure on the powder (abstract; column 2, lines 41-43; column 3, lines 22-27 and 38-46; and Figure 1). Control of the gas injection device is provided by a pneumatic powder-conveying main pipe supplied with two-way valves, from which the pneumatic powder-returning pipes are connected to branch, or distributing, pipes from respective powder hoppers (column 4, lines 65-68; column 5, lines 1-17 and 39-55; column 6, lines 20-31; column 7, lines 1-19; column 8, lines 8-45; column 9, lines 1-28; column 11, lines 1-27; and Figures 1-9). A suction pipe is used as a vacuum transfer system (column 7, lines 30-37 and 51-60; and column 10, lines 20-34). A pneumatic controller provided with sensors detects abnormal operation pressure to control opening and closing of the valves (column 9, lines 29-68; and column 10, lines 1-8). These additional features

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provide the advantages of preventing build-up (blockages) of powder and other irregularities that occur during the powder dispensing operation (column 5, lines 39-55).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the device for feeding a granular material into a continuous casting mold, as disclosed by Hubert et al., with the pneumatic pinch valve means of Mulder et al., and with the further modifications of providing pressurizing means and branching tube assemblies, as taught by Kataoka et al., in order to prevent build-up (blockages) of powder and other irregularities that occur during the powder dispensing operation (Kataoka et al.; column 5, lines 39-55).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The King, Mraz, and Mancini et al. references are also cited to show the state of the art. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK

kpk

May 17, 2001



TOM DUNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700